United States Patent [19]

Miller et al.

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[54] **SOLVENT EXTRACTION OF NICKEL FROM AMMONIACAL SOLUTIONS**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 407,925, Oct. 19, 1973, abandoned.

[52] **U.S. Cl.** ..... **423/139**; 75/101 BE

[51] **Int. Cl.**[2] **C01G 51/10**; C01G 53/00

[58] **Field of Search** ..... 423/139; 75/119, 101 BE

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[57] **ABSTRACT**

An ammoniacal solution containing nickel and cobalt is contacted with an extractant comprising an oxime or oxine compound dissolved in an organic diluent to selectively extract the nickel into the organic phase while leaving most of the cobalt in the aqueous ammoniacal phase from which it is subsequently recovered. The nickel-loaded organic extract is washed with water and aqueous carbon dioxide to remove and recover ammonia which undesirably transfers to the organic phase during the extraction. The ammonia-free, nickel-loaded extract is then stripped with aqueous sulfuric acid at low temperature to remove the nickel. The ammonia-free nickel sulfate solution produced in the stripping operation is particularly suitable for recovering the nickel by electrolytic deposition. The stripped organic extract is further stripped with aqueous sulfuric acid at high temperature to remove and recover the small amount of cobalt which transfers to the organic phase during extraction and hampers reuse of the organic extractant in the process. Removal of the cobalt permits recycle of the extractant to the process.

22 Claims, 1 Drawing Figure